BEFORE THE
Federal Communications Commission
WASHINGTON, D.C.

In the Matter of	)	
	)	
Interconnection and Resale	)	CC Docket 94-54
Obligations Pertaining to	)	DA 97-2558
Commercial Mobile Radio Services	)	

COMMENTS OF THE CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION

Andrea D. Williams
Assistant General Counsel

Wendy Chow
Staff Counsel

Michael F. Altschul
Vice President, General Counsel

Randall S. Coleman
Vice President for
Regulatory Policy and Law

CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION
1250 Connecticut Avenue, N.W.
Suite 200
Washington, D.C. 20036
(202) 785-0081

January 5, 1998

TABLE OF CONTENTS

SUMMARY

In its comments, CTIA provides the Commission with a report of several trends in automatic roaming that have emerged since the deployment of Personal Communications Services in the United States. Specifically, CTIA note that CMRS carriers, including new entrants are volunarily and successfully negotiating roaming agreements by employing various business strategies such as cross-band roaming arrangements, "rolling up", cellular/PCS analog roaming agreements, PCS-PCS roaming agreements, and joint ventures in order to prime themselves for increased competition in the CMRS marketplace.

CTIA reports on the technological advancements in wireless equipment and networks that impact automatic roaming. CTIA also explains how the recent proposals for number pooling and CMRS local number portability requirements may preclude CMRS carriers from establishing automatic roaming arrangements.

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C.

In the Matter of	)	
	)	
Interconnection and Resale	)	CC Docket 94-54
Obligations Pertaining to	)	DA 97-2558
Commercial Mobile Radio Services	)	

COMMENTS OF THE CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION

The Cellular Telecommunications Industry Association ("CTIA")[1] respectfully submits these comments in response to the Public Notice in the above mentioned proceeding.[2]

Introduction

In its *Third Notice*, the Commission acknowledged that the record before it was inconclusive with respect to automatic roaming, and therefore the Commission declined to make a significant departure from its long-standing policy of allowing market forces, rather than regulation, to shape the development of commercial mobile radio services by imposing automatic roaming

---

[1] CTIA is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the association covers all Commercial Mobile Radio Service ("CMRS") providers, and includes forty-eight of the fifty largest cellular and broadband PCS providers. CTIA represents more broadband PCS carriers and more cellular carriers than any other trade association.

[2] See In the Matter of Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, CC Docket 94-54, "Commission Seeks Additional Comment on Automatic Roaming Proposals for Cellular, Broadband PCS, and Covered SMR Networks", Public Notice (released December 5, 1997) ("Public Notice").

requirements among CMRS providers.[3] Absent evidence of pervasive market failure or market power, mandating an automatic roaming requirement would represent a significant departure from the Commission's long-standing policies towards lessened regulation of CMRS providers.[4]

In the *Public Notice*, the Commission seeks to update the record in this proceeding. Now that PCS carriers are operational, CTIA is able to provide the Commission with this report on several trends in roaming arrangements, including recent developments in PCS/cellular dual band technology, number administration, and number portability that have a significant impact on roaming.

Inter-carrier roaming agreements are complex contracts that are the product of detailed negotiations. Rates and terms vary depending on numerous factors including proximity of the roaming markets, volume of anticipated traffic exchanged between systems, and the fraud prevention and detection methods in place for the respective carriers. While there have been published reports of inter-carrier negotiations resulting in a refusal to enter into an in-market PCS to cellular roaming arrangement, just as there

---

[3] See In the Matter of Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, CC Docket 94-54, *Second Report and Order and Third Notice of Proposed Rulemaking*, 11 FCC Rcd 9462, 9472, 9477 (1996)("Third Notice").

[4] See In the Matter of Interconnection and Resale Obligations Pertaining to Commercial Mobile Radio Services, CC Docket 94-54, Reply Comments of the Cellular Telecommunications Industry Association, 1-3 (filed November 22, 1996) ("CTIA Reply Comments").

were cellular to cellular refusals in the past, in at least one reported case the parties reached a settlement and continue to negotiate the terms and conditions for such roaming arrangements.[5] **Many CMRS providers, including new entrants, are voluntarily and successfully negotiating roaming agreements and other arrangements as part of their strategic business plans to compete effectively in the CMRS marketplace.**

I. CMRS CARRIERS, INCLUDING NEW ENTRANTS, ARE NEGOTIATING INTER-CARRIER ROAMING AGREEMENTS AND OTHER ARRANGEMENTS.

CMRS carriers, including new entrants, are voluntarily and successfully negotiating roaming agreements and joint ventures, primarily to enhance the services they provide to their subscribers in an increasingly competitive CMRS marketplace. CMRS carriers are employing various business strategies such as cross-band roaming arrangements, "rolling up", cellular/PCS analog roaming agreements, PCS/PCS roaming agreements, and joint ventures to position themselves for increased competition in the CMRS marketplace.

A. CMRS carriers are employing cross-technology roaming and "rolling up" to facilitate automatic roaming.

CIBERNET's[6] preliminary research indicates two significant trends in inter-carrier roaming arrangements since the deployment

---

[5] See *AT&T's True PCS Launches on East Coast Will Bring More Revenue To Incumbent Cellular Carriers*, MOBILE PHONE NEWS, Oct. 20, 1997, at 1.

[6] CIBERNET is a wholly owned subsidiary of the Cellular Telecommunications Industry Association. CIBERNET plays a key role in industry standard-setting for intercarrier exchange of billing data and financial settlements.

of PCS. First, while the average cellular carrier generally established roaming agreements with its A-band or B-band counterpart in out-of-region markets, PCS carriers are transcending this type of roaming arrangement. They are negotiating cross-mode (digital-analog)and cross-band agreements with either A-band or B-band cellular carriers in both out-of-region and in-region markets.[7]

Another trend is the "rolling up" of new PCS licenses, particularly in the PCS D, E and F blocks, with existing cellular and PCS roaming agreements. Many existing cellular carriers and A/B block PCS carriers purchased a significant number of PCS licenses in the D-F Blocks.[8] Generally, these cellular and PCS carriers enfold or "roll up" their D-F Block licenses into their existing roaming agreements in order to expand their coverage or fill-in uncovered areas in their existing service area.[9]

---

[7] See Affidavit of Mary Clark, Director, CIBERNET ("Clark Affidavit"). Attached hereto as Exhibit A.

[8] See CIBERNET's list of cellular carriers and A/B Block PCS carriers that own D-F PCS licenses. Attached hereto as Exhibit B.

[9] See Clark Affidavit at 2. See also *BellSouth Schedules Tampa Bay Launch for Early 1998,* PCS WEEK, Oct. 22, 1997, at 7. (BellSouth Corporation announcing plans to roll out service in its Florida D- and E-block markets in early 1998. BellSouth stated that along with the majority of BellSouth's 10 MHz territory, the Florida markets will not be part of the GSM network operated by BellSouth Mobility DCS but will be IS-136 markets operated by its cellular subsidiary BellSouth Cellular Corp. which provides 800 MHz service along much of Florida's eastern coast.)

B. Cellular-PCS and PCS-PCS roaming agreements are prevalent in the CMRS marketplace.

There are primarily two categories of roaming arrangements that cellular and PCS carriers are negotiating - Cellular-PCS roaming arrangements and PCS-PCS roaming arrangements. With the availability of dual- and tri-mode, dual-band handsets, and these agreements CMRS providers can provide virtually ubiquitous coverage for their subscribers.[10]

In an effort to position itself for increased competition in the CMRS marketplace, PrimeCo Personal Communications L.P. ("PrimeCo") has turned to its parent companies, AirTouch Communications, Bell Atlantic Corp., and US West Media Group, as roaming partners. Last month, PrimeCo introduced its dual-band, dual-mode roaming service, PrimeTravel, which offers its subscribers "coast-to-coast" roaming. PrimeTravel is designed to expand PrimeCo's coverage area beyond the Southeast and its other markets dispersed across the United States. Through roaming arrangements with its parent companies, Primeco states that it can provide its subscribers with access to wireless networks covering nearly two-thirds of the U.S. population.[11]

PCS carriers are also negotiating PCS-PCS roaming arrangements.[12] While pursuing analog roaming agreements with

---

[10] *AMPS Rides Again as PCS Carriers Turn to Analog Roaming to Increase Coverage,* PCS WEEK, Oct. 22, 1997, at 3.

[11] See Lee, *PrimeCo Offers Subscribers 'Coast-to-Coast' Roaming,* WIRELESS WEEK, Dec. 8, 1997, at 43.

[12] Earlier this year, WirelessNorth, a PCS provider serving the Midwest, signed a roaming agreement with Sprint Spectrum, a CDMA

cellular carriers, GSM-1900 carriers also are selecting roaming partners with GSM-1900 networks in core urban areas as part of their business strategy to provide ubiquitous coverage to their subscribers in a competitive CMRS marketplace.[13] Over the past two months, several GSM-1900 carriers have successfully negotiated and signed such PCS/PCS roaming agreements.[14]

PCS carrier. *WirelessNorth, Clearnet Ink Roaming Pact,* RADIO COMM. REP., Nov. 10, 1997, at 26.

[13] In 1987, the GSM MoU Association established a regional group, the North American GSM Group, primarily to facilitate roaming on their networks in the United States and abroad.

[14] See *Aerial Makes Final Preparations To Turn on GSM-1900 Roaming,* COMM. TODAY, Dec. 1, 1997, at 2. (Aerial Communications launched its roaming service, Aerial Traveling Service, which will offer its subscribers the ability to roam in 32 states and 3 Canadian provinces where GSM-1900 service is available.)

In late October 1997, APC announced a new roaming agreement with Omnipoint Corporation that marks the addition of Philadelphia and markets in Eastern Pennsylvania, Southern New Jersey and Delaware to the areas where APC currently offers roaming. *Sprint-Cable PCS Entity Applies to Buy Majority Control of APC,* WIRELESS TODAY, Oct. 27, 1997.

Airadigm Communications, a C-block and F-block licensee, also has successfully negotiated roaming agreements with Omnipoint, Western Wireless and Pacific Bell Mobile Services that will allow Airadigm's Einstein PCS customers to roam in New York, Philadelphia, Boston, Kansas, Michigan, Ohio and the Northeast (Omnipoint's networks); Colorado, Hawaii, Iowa, New Mexico, Oklahoma, Oregon, Texas, Utah (Western Wireless's network), California, and parts of Nevada (Pacific Bell Mobile's networks). Airadigm also have signed roaming agreements with Powertel which serves Alabama, Florida, Georgia, Kentucky, Louisiana, Michigan, and Tennessee, and Aerial Communications with markets covering areas of Alabama, Florida, Minnesota, Missouri, Ohio, Pennsylvania and Texas. *Airadigm Moves Full Speed Ahead in Roaming,* WIRELESSWORLD, Nov. 1997.

C. CMRS carriers are also employing joint ventures to facilitate automatic roaming.

Several CMRS providers are embracing joint marketing agreements and joint ventures that include reciprocal roaming arrangements and licensing as a strategic plan to confront increased competition. For example, AT&T Wireless Services (AWS) recently signed a five-year agreement with Dobson Communications, expanding AWS coverage in markets adjacent to its existing license areas in seven states where Dobson also operates. This arrangement provides AWS with access to an additional 100,000 wireless customers in seven states as well as expansion of its TDMA network.[15] AWS also has chosen a similar arrangement with Triton PCS to expand AWS digital coverage across Georgia, Virginia, North Carolina, South Carolina, and parts of the Baltimore-Washington corridor. The AWS/Triton PCS joint venture, which also includes reciprocal roaming arrangements, will expand AWS coverage to an additional 11 million people, and will allow Triton PCS customers to roam on AWS networks in other cities. Under the joint venture, Triton PCS will be identified as "Triton

[15] Under the terms of the agreement, Dobson will install TDMA infrastructure onto most of its cellular networks in Arizona, California, Kansas, Maryland, Missouri, Oklahoma and Texas. Dobson also holds 10 MHz PCS licenses in Kansas, Missouri, and Oklahoma, and discussing with AWS the possibility of selling wireless services in these markets under the AWS name as part of an affiliation agreement. *Okla. Telecom Company Signs 5-Year Deal to Build AT&T Wireless Network,* COMM. DAILY, Dec. 11, 1997, at 7.

PCS, AT&T Wireless Member" and will build and operate the wireless system using TDMA IS-36 technology.[16]

In December 1997, Omnipoint and Western Wireless, which are roaming partners in several markets, signed a joint marketing agreement allowing them to market their wireless services in Wichita, Hutchinson and Salina, Kansas as VoiceStream Wireless, the brand name for Western Wireless' PCS operations. Omnipoint and Western Wireless also will jointly operate the networks in these markets.[17]

II. RECENT DEVELOPMENTS IN TECHNOLOGY HAVE AN IMPACT ON THE TECHNICAL FEASIBILITY AND COST OF AUTOMATIC ROAMING.

A. The development of dual-mode and dual-band handsets make automatic roaming technically feasible.

The recent availability of dual-band, dual- (and tri-) mode handsets have facilitated the availability of automatic roaming among CMRS providers. Manufacturers are now marketing several types of dual-band, dual-mode phones that were unveiled earlier this year at CTIA's **Wireless `97**. For example, Ericsson has developed a dual-band, dual-mode IS-136 handset which it claims can boost the capacity of TDMA networks to between five and seven times the capacity of an AMPS network.[18] Lucent Technologies also has developed a dual-mode, dual band handset called the

---

[16] See *Triton Licenses AT&T Brand*, WIRELESSWORLD, Dec. 1997.

[17] See *PCS Players To Jointly Market GSM-1900 Service in Kansas BTAs*, COMM. TODAY, Dec. 2, 1997, at 2-3.

[18] McHale, *Waiting for PCS to Pay Off*, ELECTRONIC BUYERS' NEWS, Oct. 27, 1997.

Digital Cellular/PCS Telephone 6735, offering coverage under conventional cellular and PCS networks. For CDMA subscribers, Qualcomm has launched a dual-band, dual-mode handset which provides Internet access with a wireless browser capability.[19]

While CMRS providers are quickly moving to dual-band, dual-mode handsets, the transition is expected to continue over the next 24 months.[20] Industry analysts expect global sales of dual-band, multi-mode handsets to grow from 7 percent of the market in 1997 to approximately 90 percent by 2000.[21]

> We see dual-band, dual-mode products as a significant trend in the market beginning in early 1998....In the next few years, dual devices will be important to provide coverage while the infrastructure is being built out....No matter what standard is used, handset vendors are focused on two trends this year: dual-band, dual-mode equipment and data-transmission features including Internet access.[22]

B. The development of network solutions is just emerging.

In addition to handset solutions, manufacturers are also developing network solutions to facilitate roaming. Network solutions, however, are nascent and costly. For example, CMS St. Cloud is installing a wireless network solution from Nortel which will allow CMS St. Cloud to serve cellular and PCS, CDMA, TDMA and analog customers off the same switch and the same network.

---

[19] Id.

[20] See McHale, *Waiting for PCS to Pay Off*, ELECTRONIC BUYERS' NEWS, Oct. 27, 1997 (quoting industry analysts at Baskerville Communications).

[21] Id.

[22] Id.

CMS St. Cloud, however, is investing nearly ten million dollars in this solution, purchasing Nortel's CDMA 1900 digital radio base stations and TDMA 800 DualMode Radio equipment. These network upgrades and CMS St. Cloud's existing Nortel analog radio base stations will be served by a single Nortel DMS-MTX SuperNode digital wireless switching system. According to Nortel, it's DMS-MTX SuperNode digital mobile switching platform offers high capacity and flexibility. With this network solution, CMS St. Cloud plans to use roaming agreements and dual-band handsets to pro Other network solutions include interconnecting AMPS and GSM networks. At the annual GSM in North America Conference, DSC Communications, Inc. presented different ways to accomplish such interconnection, *e.g.*, dual-mode Home Location Registers that provide each network with the protocols it needs, and separate internet-working gateways provide virtually nationwide coverage for its subscribers.[23]

Other network solutions include interconecting AMPS and GSM networks. At the annual GSM in North America Conference, DSC Communications, Inc. presented different ways to accomplish such interconnection, *e.g.*, dual-mode Home Location Registers that provide each network with the protocols it needs, and separate internet-working gateways which translate between the two networks.[24] While network solutions may be technically feasible,

---

[23] *CMS St. Cloud to Capitalize on Roaming, Data, Local Service Opportunities Using CDMA, TDMA Digital Wireless Network from Nortel*, CANADA NEWSWIRE, Dec. 3, 1997.

[24] *GSM Turns to Analog Roaming To Expand Outside Urban Cores*, PCS WEEK, Dec. 3, 1997, at 4, 5.

it still can be cost prohibitive for some CMRS carriers to upgrade their existing infrastructure to accommodate network solutions for automatic roaming.

III. LOCAL NUMBER PORTABILITY AND NUMBER POOLING MAY IMPACT THE TECHNICAL FEASIBILITY OF AUTOMATIC ROAMING.

As more players continue to enter the telecommunications market, the problem of number exhaust (*i.e.*, the lack of available telephone numbers) has become a widespread reality. Recently, some states have proposed methods to prevent number exhaust that discriminate against wireless carriers and, if implemented, would disrupt roaming arrangements.[25] Specifically, the Pennsylvania Public Utility Commission ("PaPUC") has embraced two measures in an attempt to delay the need for area code relief -- an interim transparent area code overlay and number block pooling upon implementation of permanent local number portability. The number pooling proposal requires distribution of numbers in 1000 number blocks rather than 10,000 number blocks.

Among other things, distributing numbers by 1000 number blocks creates technical difficulties for roaming. Roaming requires that each switch recognize a visiting customer's home carrier in order to verify that a roaming arrangement exists and obtain the proper billing information. Typically, the visited

---

[25] See "Common Carrier Bureau Seeks Comment on Petition for Declaratory Ruling and Request for Expedited Action Filed by Providers of Commercial Mobile Radio Service in Pennsylvania," Public Notice, DA 97-2418 (Nov. 18, 1997).

switch identifies the customer's home carrier via the first six digits of a telephone handset's number (*i.e.*, the NPA-NXX).[26] If numbers are distributed in smaller increments in some areas such as Pennsylvania, and if, concurrently, all CMRS providers are required to enter into automatic roaming agreements on a nondiscriminatory basis, wireless switches across the nation will require significant modifications in order to recognize the first seven digits of the telephone number.

It is conceivable that, in lieu of upgrading switches nationwide to accommodate roaming customers from a particular locality that has implemented 1000 number block pooling, some carriers would deny roaming arrangements with those customers' carriers altogether. On the other hand, eliminating this outcome by requiring all carriers to enter into automatic roaming arrangements would impose excessive costs to the carriers -- and ultimately their customers throughout the United States -- to accommodate particular localities that have adopted local measures to conserve numbers without consideration of the impact of their actions in other markets.[27]

---

[26] See In the Matter of the Pennsylvania Public Utility Commission Order Dated July 15, 1997 Regarding Area Code Relief in the 610, 215, 717, and 412 Area Codes, "Petition for a Declaratory Ruling and Request for Expedited Action," filed by Nextel Communications, Inc., Vanguard Cellular Systems, Inc., Bell Atlantic Mobile, Inc., Sprint PCS, and 360 Communications Co., at 10 (Nov. 14, 1997).

[27] The record of the open proceeding on the PaPUC number pooling issue indicates that a national standard for number pooling is currently being studied by the Industry Numbering Committee but has not yet been completed and requires further analysis by industry experts.

Under the Commission's rules governing number portability, CMRS carriers must have the ability to port numbers in the top 100 MSAs by June 30, 1999.[28] In markets outside of the top 100 MSAs, carriers must port numbers within six months of a request by another carrier.[29] Since the demand for ported numbers in the less populated markets (*i.e.*, markets outside the top 100 MSAs) is expected to be low, many of the carriers in these markets will not have local number portability capable switches in place.

If all CMRS carriers are required to implement automatic roaming agreements, possible technical incompatibilities between LNP capable and non-LNP capable switches may force wireless carriers to deploy LNP throughout their switches in all markets. When a customer roams in a market where automatic roaming has been implemented, the visited system queries the home system to verify that the customer's account is current and to obtain billing and other information about the customer. It is unclear whether a LNP capable switch and a non-LNP capable switch can communicate in this manner in order to allow automatic roaming. Standards groups currently are studying this issue.

Absent a technical solution to this potential problem, wireless carriers would be required to make all of their switches LNP capable in order to implement nationwide automatic roaming -- a requirement that goes beyond those imposed on the wireline

---

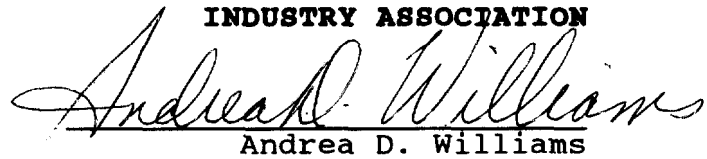
[28] In the Matter of Telephone Number Portability, First Memorandum Opinion and Order on Reconsideration, FCC 97-74, at ¶ 136 (Mar. 11, 1997).

[29] Id. at ¶ 137.

carriers. To avoid unintended consequences, the Commission may wish to refrain from imposing automatic roaming requirements on CMRS carriers until the industry standards groups have determined the impact that LNP will have on such a requirement.

Respectfully submitted,

CELLULAR TELECOMMUNICATIONS INDUSTRY ASSOCIATION



Andrea D. Williams
Assistant General Counsel

Wendy Chow
Staff Counsel

Michael F. Altschul
Vice President, General Counsel

Randall S. Coleman
Vice President for
Regulatory Policy and Law

January 5, 1998

1250 Connecticut Avenue, N.W.
Suite 200
Washington, D.C. 20036
(202) 785-0081

EXHIBIT A

AFFIDAVIT OF MARY CLARK

I, Mary Clark, being first duly sworn, deposes and states:

1. I am Director of CIBERNET. I have been in this position since September 15, 1997. Prior to this date, I have been involved in issues relating to roaming and the net settlement program at CIBERNET and the Cellular Telecommunications Industry Association since December 1995.

2. CIBERNET is a wholly owned subsidiary of CTIA. CIBERNET plays a key role in industry standard-setting for intercarrier exchange of billing data and financial settlements.

3. CIBERNET's CIBER Record is the industry standard for transferring roamer billing information between wireless carriers. CIBERNET monitors developments in the industry and updates the standard accordingly. CIBERNET also has assumed responsibility for assigning System Identification Numbers (SIDs) to PCS carriers.

5. Based on my professional experience, inter-carrier roaming arrangements are complex and depend on numerous factors such as the proximity of the roaming markets, volume of traffic exchanged between the systems, and fraud

prevention and detection methods in place for respective carriers.

4. Based on my professional experience, there are several trends emerging in inter-carrier roaming arrangements:

a. The average cellular carrier has established roaming agreements with a like band carrier. For example, a cellular A-band carrier will sign a reciprocal roaming agreement with an out-of-region cellular A-band carrier. This is also true for cellular B-band carriers.

b. New PCS entrants are signing cross-technology, *i.e.*, digital-analog roaming agreements with either A- or B-band cellular carriers in-region and out-of-region.

c. Existing cellular carriers and A/B Block PCS carriers that purchased licenses in the PCS D-F Block auctions are rolling up their D-F licenses into their existing roaming agreements in order to fill-in their footprints or expand their coverage.

5. Attached is a list of cellular and A/B Block PCS carriers that own D-F Block PCS Licenses. See Exhibit B, attached hereto and incorporated herein.

6. This affidavit is based on my professional experience and knowledge of CIBERNET's Net Settlement Program.

By: _____
Mary Clark

Subscribed and sworn to before me this fifth day of January, 1998.

_____
Notary Public

JULIANNE PLOCKI
Notary Public - District of Columbia
My Commission Expires: 14 October 2002

Exhibit B

EXHIBIT B

Cellular and A/B Block PCS Carriers that Own D-F Block PCS Licenses

ALLTEL	Comcast	Radiofone
Ameritech	Georgia Independent	Southwestern Bell
AT&T Wireless	GTE	Sprint
BellSouth	Kansas	Triad
Cellular Communications of Puerto Rico	Mercury	US West
Centennial	Next Wave	Westel
Century	Public Service Cellular	Western Wireless

Market_Name	Carrier_Name	SID	Band
Bloomington, IN	21st Century Bidding Corp	04320	D
Muncie, IN	21st Century Bidding Corp	04850	D
Elkhart, IN	21st Century Bidding Corp	05492	F
Glens Falls, NY	21st Century Bidding Corp	05566	F
Hastings, NE	21st Century Bidding Corp	05610	F
Indianapolis, IN	21st Century Bidding Corp	05648	F
Lafayette, IN	21st Century Bidding Corp	05712	F
Michigan City, IN	21st Century Bidding Corp	05836	F
Plattsburgh, NY	21st Century Bidding Corp	05954	F
Scranton, PA	21st Century Bidding Corp	06068	F
Binghamton, NY	21st Century Telesis Joint Venture	04311	C
Danville, IL	21st Century Telesis Joint Venture	04435	C
Grand Island, NE	21st Century Telesis Joint Venture	04563	C
Ithaca, NY	21st Century Telesis Joint Venture	04645	C
Jackson, MS	21st Century Telesis Joint Venture	04649	C
Kokomo, IN	21st Century Telesis Joint Venture	04695	C
Lincoln, NE	21st Century Telesis Joint Venture	04741	C
McCook, NE	21st Century Telesis Joint Venture	04769	C
Marion, IN	21st Century Telesis Joint Venture	04789	C
North Platte, NE	21st Century Telesis Joint Venture	04879	C
Oneonta, NY	21st Century Telesis Joint Venture	04895	C
South Bend, IN	21st Century Telesis Joint Venture	05077	C
Syracuse, NY	21st Century Telesis Joint Venture	05105	C
Terre Haute, IN	21st Century Telesis Joint Venture	05113	C
Utica, NY	21st Century Telesis Joint Venture	05135	C
Vincennes, IN	21st Century Telesis Joint Venture	05143	C
Watertown, NY	21st Century Telesis Joint Venture	05155	C
Petoskey, MI	ACC-PCS, Inc.	04924	D
Providence, RI	ACC-PCS, Inc.	04962	D
Springfield, MA	ACC-PCS, Inc.	05082	D
Waterville, ME	ACC-PCS, Inc.	05170	D
Albany, NY	ACC-PCS, Inc.	05253	E
Glens Falls, NY	ACC-PCS, Inc.	05569	E
Manchester, NH	ACC-PCS, Inc.	05785	E
Pittsfield, MA	ACC-PCS, Inc.	05949	E
Worcester, MA	ACC-PCS, Inc.	06211	E
Bend, OR	Aer Force Communications, L.P.	04301	C
Cumberland, MD	Aer Force Communications, L.P.	04429	C
Davenport, IA	Aer Force Communications, L.P.	04439	C
Daytona Beach, FL	Aer Force Communications, L.P.	04443	C
Des Moines, IA	Aer Force Communications, L.P.	04451	C
Dubuque, IA	Aer Force Communications, L.P.	04465	C
Fredericksburg, VA	Aer Force Communications, L.P.	04541	C
Iowa City, IA	Aer Force Communications, L.P.	04639	C
Ocala, FL	Aer Force Communications, L.P.	04881	C
Salina, KS	Aer Force Communications, L.P.	05021	C
Salisbury, MD	Aer Force Communications, L.P.	05025	C

Market_Name	Carrier_Name	SID	Band
Waco, TX	Aer Force Communications, L.P.	05147	C
Los Angeles, CA	Aer Force Communications, L.P.	05768	F
Reno, NV	Aer Force Communications, L.P.	05994	F
Santa Barbara, CA	Aer Force Communications, L.P.	06056	F
Sarasota, FL	Aer Force Communications, L.P.	06060	F
Washington, DC	Aer Force Communications, L.P.	06178	F
Columbus	Aerial Communications, Inc.	04118	B
Guam-Northern Mariana Is	Aerial Communications, Inc.	04130	B
Houston	Aerial Communications, Inc.	04133	A
Kansas City	Aerial Communications, Inc.	04140	B
Minneapolis-St. Paul	Aerial Communications, Inc.	04156	B
Pittsburgh	Aerial Communications, Inc.	04172	B
Tampa-St. Petersburg-Orl	Aerial Communications, Inc.	04191	A
Manitowoc, WI	Airadigm Communications	04781	C
Sheboygan WI	Airadigm Communications	05063	C
Dubuque, IA	Airadigm Communications	05474	F
Marinette, WI	Airadigm Communications	05796	F
Charlotte, NC	AirGate Wireless, L.L.C.	05386	F
Greensboro, NC	AirGate Wireless, L.L.C.	05586	F
Greenwood, SC	AirGate Wireless, L.L.C.	05594	F
Hickory, NC	AirGate Wireless, L.L.C.	05618	F
Bartlesville, OK	ALLTEL Mobile Communications	04288	D
Birmingham, AL	ALLTEL Mobile Communications	04314	D
Decatur, AL	ALLTEL Mobile Communications	04444	D
Dothan, AL	ALLTEL Mobile Communications	04458	D
El Dorado, AR	ALLTEL Mobile Communications	04478	D
Fayetteville, AR	ALLTEL Mobile Communications	04508	D
Florence, AL	ALLTEL Mobile Communications	04520	D
Ft Walton Beach, FL	ALLTEL Mobile Communications	04540	D
Gadsden, AL	ALLTEL Mobile Communications	04544	D
Huntsville, AL	ALLTEL Mobile Communications	04626	D
Jonesboro, AR	ALLTEL Mobile Communications	04668	D
Kansas City, MO	ALLTEL Mobile Communications	04682	D
McComb, MS	ALLTEL Mobile Communications	04802	D
Mobile, AL	ALLTEL Mobile Communications	04836	D
Montgomery, AL	ALLTEL Mobile Communications	04842	D
Muskogee, OK	ALLTEL Mobile Communications	04854	D
Naples, FL	ALLTEL Mobile Communications	04858	D
Pensacola, FL	ALLTEL Mobile Communications	04920	D
Russellvile, AR	ALLTEL Mobile Communications	05008	D
Selma, AL	ALLTEL Mobile Communications	05058	D
Sherman, TX	ALLTEL Mobile Communications	05064	D
Texarkana, TX	ALLTEL Mobile Communications	05122	D
Tulsa, OK	ALLTEL Mobile Communications	05132	D
Tuscaloosa, AL	ALLTEL Mobile Communications	05136	D
Anderson, SC	ALLTEL Mobile Communications	05273	E
Anniston, AL	ALLTEL Mobile Communications	05275	E

Market_Name	Carrier_Name	SID	Band
Asheville, NC	ALLTEL Mobile Communications	05281	E
Athens, GA	ALLTEL Mobile Communications	05285	E
Atlanta, GA	ALLTEL Mobile Communications	05289	E
Biloxi, MS	ALLTEL Mobile Communications	05325	E
Blytheville, AR	ALLTEL Mobile Communications	05339	E
Burlington, NC	ALLTEL Mobile Communications	05365	E
Charleston, SC	ALLTEL Mobile Communications	05385	E
Charlotte, NC	ALLTEL Mobile Communications	05389	E
Chattanooga, TN	ALLTEL Mobile Communications	05393	E
Cleveland, TN	ALLTEL Mobile Communications	05411	E
Columbia, SC	ALLTEL Mobile Communications	05423	E
Dalton, GA	ALLTEL Mobile Communications	05445	E
Fayetteville, NC	ALLTEL Mobile Communications	05523	E
Florence, SC	ALLTEL Mobile Communications	05535	E
Ft Smith, AR	ALLTEL Mobile Communications	05551	E
Gainesville, GA	ALLTEL Mobile Communications	05561	E
Goldsboro, NC	ALLTEL Mobile Communications	05571	E
Greensboro, NC	ALLTEL Mobile Communications	05589	E
Greenville, NC	ALLTEL Mobile Communications	05593	E
Greenville, SC	ALLTEL Mobile Communications	05595	E
Greenwood, SC	ALLTEL Mobile Communications	05597	E
Harrison, AR	ALLTEL Mobile Communications	05607	E
Hickory, NC	ALLTEL Mobile Communications	05621	E
Hot Springs, AR	ALLTEL Mobile Communications	05629	E
Jacksonville, FL	ALLTEL Mobile Communications	05667	E
Jacksonville, NC	ALLTEL Mobile Communications	05671	E
Jefferson City, MO	ALLTEL Mobile Communications	05677	E
Joplin, MO	ALLTEL Mobile Communications	05683	E
Lawrence, KS	ALLTEL Mobile Communications	05737	E
Little Rock, AR	ALLTEL Mobile Communications	05757	E
Macon, GA	ALLTEL Mobile Communications	05777	E
Memphis, TN	ALLTEL Mobile Communications	05825	E
Myrtle Beach, SC	ALLTEL Mobile Communications	05869	E
New Bern, NC	ALLTEL Mobile Communications	05877	E
Orangeburg, SC	ALLTEL Mobile Communications	05917	E
Pine Bluff, AR	ALLTEL Mobile Communications	05943	E
Poplar Bluff, MO	ALLTEL Mobile Communications	05957	E
Raleigh, NC	ALLTEL Mobile Communications	05983	E
Roanoke Rapids, NC	ALLTEL Mobile Communications	05999	E
Rocky Mount, NC	ALLTEL Mobile Communications	06011	E
Rolla, MO	ALLTEL Mobile Communications	06013	E
Rome, GA	ALLTEL Mobile Communications	06015	E
Sedalia, MO	ALLTEL Mobile Communications	06069	E
Springfield, MO	ALLTEL Mobile Communications	06097	E
Sumter, SC	ALLTEL Mobile Communications	06121	E
West Plains, MO	ALLTEL Mobile Communications	06191	E
Wilmington, NC	ALLTEL Mobile Communications	06207	E